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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/622,044
Filing Date: December 13, 2000
Appellant(s): BORDEAUX ET AL.

Kirsten Grueneberg
For Appellant

EXAMINER'S ANSWER

MAILED

AUG X 6 2004

GROUP 1700

This is in response to the appeal brief filed 5/25/04.

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(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The rejection of claims 12, 15-22, and 26-29 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

3558415	Rieser et al.	1-1971
5397647	Kramling et al.	3-1995
4910074	Fukawa et al.	3-1990

Rieser et al. is directed to making an anti-laceration automobile window glazing by adhering two chemically and/or thermally tempered glass sheets having a thickness of 0.04 to 0.09 in (1 to 2.3 mm) using an adhesive interlayer having a thickness of 0.3 to 0.06 in (0.76 to 1.52 mm). The reference teaches using an interlayer having a thickness within this range because such produces a glazing of optimum safety having better yield upon impact than prior art glazings having an interlayer whose thickness is outside this range.

Kramling et al. is directed to making an anti-laceration automobile side window glazing by adhering two thermally tempered glass sheets having a thickness of 1.5 to 4 mm using an adhesive interlayer. The reference teaches thermally tempering each of the glass sheets to have a core compressive stress in the central zone ranging from 1 to 50 MPa because this allows the glass sheets to be relatively thin while allowing them to break into large splinters that remain glued to the adhesive upon impact, thereby ensuring passenger safety.

Fukawa et al. is directed to an anti-laceration automobile window glazing comprising a functional layer and a plastic sheet on one of the outer faces of the glazing.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**It is noted that the previous office action presented the rejections using Rieser et al. in view of Kramling et al., or alternatively, Kramling et al. in view of Rieser et al. under one heading. However, the examiner has presented these rejections under separate headings below for clarity purposes.*

Claims 12, 15-19, and 28-29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rieser et al. (US 3558415; of record) in view of Kramling et al. (US 5397647; of record).

With respect to claims 12 and 28-29, Rieser et al. is directed to making an anti-laceration automobile window glazing (column 1, lines 25-30) by adhering two chemically and/or thermally tempered glass sheets (column 2, lines 49-50; column 3, lines 3-8; column 6, lines 10-15 and 26-30) having a thickness of 0.04 to 0.09 in (1 to 2.3 mm; column 6, lines 47-53; column 5, lines 54-56) using an adhesive interlayer having a thickness of 0.3 to 0.06 in (0.76 to 1.52 mm; column 5, lines 59-63). The reference teaches using an interlayer having a thickness within this range because such produces a glazing of optimum safety having better yield upon impact than prior art glazings having an interlayer whose thickness is outside this range (column 5, lines 54-58).

However, Rieser is silent as to the glazing being a side window, the glass sheets having a core compressive stress in the central zone ranging from 20 to 50 MPa, and the glazing having a TLI of 7 or less in the non-intact and bent state.

It is known in the art to make an anti-laceration automobile side window glazing (column 1, lines 8-9; column 5, lines 20-21) by adhering two thermally tempered glass sheets (column 1, lines 10-13; column 3, lines 23-33) having a thickness of 1.5 to 4 mm (column 3, lines 21-23) using an adhesive interlayer. The reference teaches thermally tempering each of the glass sheets to have a core compressive stress in the central zone ranging from 1 to 50 MPa (abstract; column 3, lines 23-33) because this allows the glass sheets to be relatively thin while allowing them to break into large splinters that remain glued to the adhesive upon impact, thereby ensuring passenger safety (column 1, lines 15-17; column 8, line 68 – column 9, line 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the tempering step of Rieser until the glass sheets of Rieser have a core compressive stress in the central zone ranging from 20 to 50 MPa and use the anti-laceration glazing as an automobile side window because such is known in the art, as taught by Kramling, wherein this allows the glass sheets to be relatively thin while allowing them to break into large splinters that remain glued to the adhesive upon impact, thereby ensuring the safety of the passengers (Kramling; column 1, lines 15-17; column 8, line 68 – column 9, line 6).

The skilled artisan would have appreciated that the TLI is a notoriously well-known and conventional index used to evaluate the severity of lacerations received when a passenger impacts a car window during a collision (see specification, p. 3; attachment to Appellant's response dated 9/15/03). The skilled artisan would have also appreciated that the severity of

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lacerations received is a function of how the glass behaves upon impact, which is a function of the thickness of the adhesive, the thickness of the glass sheets, and the mechanical strength of the glass sheets; therefore, the TLI of a glazing is intrinsic.

Although Rieser in view of Kramling does not expressly teach the TLI of the glazing in a non-intact and bent state, the skilled artisan would have appreciated that this glazing in a non-intact and bent state would have a TLI of 7 or less since this glazing has the same adhesive thickness, glass sheet thicknesses, and mechanical strength as that of the claimed invention.

Regarding claim 15, Rieser teaches the interlayer having a thickness not more than 2 mm (see above).

Regarding claim 16, Rieser teaches the interlayer having a thickness of not more than 1.9 mm (see above).

Regarding claim 17, Rieser teaches the interlayer having a thickness of not more than 1.53 mm (see above).

Regarding claim 18, Rieser teaches the adhesive can be PVB (column 1, lines 35-41; column 6, lines 29-30).

Regarding claim 19, Rieser teaches using a thermoplastic polyurethane as an alternative to PVB (column 1, lines 35-41).

Claims 12, 15-19, and 28-29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kramling et al. in view of Rieser et al.

With respect to claims 12 and 28-29, Applicant is directed to the rejection above for a complete discussion of Kramling. Kramling is silent as to the thickness of the adhesive layer

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being more than 0.76 mm and the glazing having a TLI of 7 or less in the non-intact and bent state.

One reading the Kramling reference as a whole would have appreciated that the thickness of the adhesive layer is not critical to the invention and therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the anti-laceration side window glazing of Kramling using an adhesive having a thickness greater than 0.76 mm because such is known in the art, as taught by Rieser (see above rejection), and this would result in a glazing of optimum safety having better yield upon impact than prior art glazings having an interlayer whose thickness is outside this range (column 5, lines 54-58).

The skilled artisan would have appreciated that the TLI is a notoriously well-known and conventional index used to evaluate the severity of lacerations received when a passenger impacts a car window during a collision (see specification, p. 3; attachment to Appellant's response dated 9/15/03). The skilled artisan would have also appreciated that the severity of lacerations received is a function of how the glass behaves upon impact, which is a function of the thickness of the adhesive, the thickness of the glass sheets, and the mechanical strength of the glass sheets; therefore, the TLI of a glazing is intrinsic.

Although Kramling in view of Rieser does not expressly teach the TLI of the glazing in a non-intact and bent state, the skilled artisan would have appreciated that this glazing in a non-intact and bent state would have a TLI of 7 or less since this glazing has the same adhesive thickness, glass sheet thicknesses, and mechanical strength as that of the claimed invention.

Regarding claim 15, Rieser teaches the interlayer having a thickness not more than 2 mm.

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Regarding claim 16, Rieser teaches the interlayer having a thickness of not more than 1.9 mm.

Regarding claim 17, Rieser teaches the interlayer having a thickness of not more than 1.53 mm.

Regarding claim 18, Kramling teaches the adhesive can be PVB (column 3, line 42).

Regarding claim 19, Kramling is silent as to the adhesive being thermoplastic polyurethane. Selection of a particular adhesive would have been within purview of the skilled artisan depending on the desired characteristics of the adhesive. However, it would have been obvious to use thermoplastic polyurethane as an alternative to PVB because such is known in the art, as taught by Rieser (column 1, lines 35-41).

Claims 20-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rieser et al. and Kramling et al., or alternatively, Kramling et al. and Rieser et al. as applied to claim 18 above, and further in view of the Admitted Prior Art in the specification of the present application.

Regarding claims 20-22, selection of a particular interlayer would have been within purview of the skilled artisan at the time the invention was made depending on the desired characteristics. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use other interlayers such as polyethylene in the form of an ionomer resin, where the ionomer resin is a (meth)acrylic acid and ethylene copolymer, or a thermoplastic polyester such as poly(ethylene terephthalate) because such is known in the art, as taught by the Admitted Prior Art (p. 2, 4th paragraph).

Claims 26-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rieser et al. and Kramling et al., or alternatively, Kramling et al. and Rieser et al. as applied to claim 12 above, and further in view of Fukawa et al. (US 4910074; of record).

Regarding claim 26, Rieser and Kramling are both silent as to the glazing comprising at least one functional layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the glazing of Rieser and/or Kramling comprise at least one functional layer because such is known in the art, as taught by Fukawa (Figure 13; column 2, lines 25-26; column 5, lines 50-56), and this enhances the aesthetics of the glazing (column 5, lines 50-55).

Regarding claim 27, Rieser and Kramling are both silent as to the glazing having a plastic sheet on one of its outer faces. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plastic sheet on one of the outer faces of the glazing of Rieser and/or Kramling because such is known in the art, as taught by Fukawa (Figures 5 and 11-14; column 2, lines 23-24), and this allows the properties of the glazing to be manipulated.

(11) Response to Argument

Appellant argues on pages 5-6 that Kramling teaches a laminate of glass/plastic/glass having a thickness of 2/0.76/2 mm (column 5, lines 38-41) wherein the reference wants to replace a 3.2 mm thick pane with a laminate pane that is not substantially thicker so as not to increase weight and cost; therefore, Kramling teaches away from increasing the thickness of the adhesive beyond 0.76 mm.

The examiner first points out that the 2/0.76/2 mm dimensions are merely *illustrative* and by no means limiting. Second, while the reference *is concerned* with *not excessively* increasing

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the total thickness of the pane when it is composed of two glass sheets (column 5, lines 32-41), the skilled artisan would have readily appreciated that the reference is *not opposed* to an increase in the total thickness beyond 3.2 mm since 4.76 mm ($2 + 0.76 + 2$) is greater than 3.2 mm – that is, 4.76 mm is an increase in the total thickness but not an “excessive” one.

Therefore, in light of the teachings of Rieser, it would have been obvious to the skilled artisan to use an adhesive having a thickness greater than 0.76 mm for that of Kramling without excessively increasing the total thickness (i.e. $2 + 0.761 + 2 = 4.761$ mm) of the laminate because this would result in a glazing of optimum safety having better yield upon impact than prior art glazings having an interlayer whose thickness is outside this range (Rieser; column 5, lines 54-58).

Appellant argues on page 6 that Kramling not only teaches away from further increasing the thickness of the adhesive layer beyond 0.76 mm, but also fails to recognize that such an increase would result in reducing the extent of laceration phenomenon. Appellant further argues that since Kramling does not disclose or suggest the claimed thickness of more than 0.76 mm for the adhesive layer, the glazing of Kramling cannot have a TLI of 7 or less in the non-intact and bent state.

As for Kramling teaching away from increasing the adhesive thickness beyond 0.76 mm, Appellant is invited to reread the previous paragraphs.

As for failing to recognize the benefits of this increase, such an argument is not commensurate with the scope of the claimed invention. However, the examiner points out that such a benefit is a direct result of the laminate having the claimed glass thicknesses, adhesive thickness, and core compressive stress. Therefore, since Kramling in view of Rieser as set forth

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in the rejection above, teaches all of these limitations, the glazing of Kramling would also result in reducing the extent of laceration phenomenon.

As for the glazing of Kramling not having the claimed TLI, the examiner directs Appellant to the rejection set forth above which establishes that the skilled artisan would have appreciated that the TLI is a notoriously well-known and conventional index used to evaluate the severity of lacerations received when a passenger impacts a car window during a collision (see specification, p. 3; attachment to Appellant's response dated 9/15/03). The skilled artisan would have also appreciated that the severity of lacerations received is a function of how the glass behaves upon impact, which is a function of the thickness of the adhesive, the thickness of the glass sheets, and the mechanical strength of the glass sheets; therefore, the TLI of a glazing is intrinsic.

Therefore, although Kramling in view of Rieser does not expressly teach the TLI of the glazing in a non-intact and bent state, the skilled artisan would have appreciated that this glazing in a non-intact and bent state would have a TLI of 7 or less since this glazing has the same adhesive thickness, glass sheet thicknesses, and mechanical strength as that of the claimed invention.

Appellant argues on page 7 that Rieser fails to teach the core compressive stress in the glass sheets or the TLI of the glazing.

The examiner directs Appellant to the rejection set forth above where the skilled artisan would have been motivated to temper the glass sheets of Rieser until they exhibit a core compressive stress in the central zone of from 20 to 50 MPa because such is known in the art, as taught by Kramling (see rejection above), wherein this allows the glass sheets to be relatively

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thin while allowing them to break into large splinters that remain glued to the adhesive upon impact, thereby ensuring the safety of the passengers (Kramling; column 1, lines 15-17; column 8, line 68 – column 9, line 6).

As for the glazing of Rieser not having the claimed TLI, the examiner directs Appellant to the rejection set forth above which establishes that the skilled artisan would have appreciated that the TLI is a notoriously well-known and conventional index used to evaluate the severity of lacerations received when a passenger impacts a car window during a collision (see specification, p. 3; attachment to Appellant's response dated 9/15/03). The skilled artisan would have also appreciated that the severity of lacerations received is a function of how the glass behaves upon impact, which is a function of the thickness of the adhesive, the thickness of the glass sheets, and the mechanical strength of the glass sheets; therefore, the TLI of a glazing is intrinsic.

Therefore, although Rieser in view of Kramling does not expressly teach the TLI of the glazing in a non-intact and bent state, the skilled artisan would have appreciated that this glazing in a non-intact and bent state would have a TLI of 7 or less since this glazing has the same adhesive thickness, glass sheet thicknesses, and mechanical strength as that of the claimed invention.

Appellant on page 8 rebuts any prima facie case of obviousness based on the cited prior art by the significant reduction in injuries that result when a person strikes the glazing formed by the presently claimed method, which "in a non-intact and bent state, has a Triplex Laceration Index of 7 or less".

The examiner points out that the present claims say nothing about a significant reduction in injury that results when a person strikes the glazing. Therefore, this argument is not commensurate with the scope of the claimed invention.

However, the examiner would like to point out that this “significant reduction” is a direct result of the glazing having a TLI of 7 or less in the non-intact and bent state, which is a direct function of the glazing having an adhesive layer with a thickness of more than 0.76 mm and two glass sheets having a thickness of 1.5-3 mm and a core compressive stress in the central zone ranging from 20-50 MPa - limitations that were rendered obvious by the teaching of Rieser in view of Kramling, or alternatively, Kramling in view of Rieser, as set forth in the rejections above.

Therefore, although Rieser in view of Kramling, or alternatively, Kramling in view of Rieser, does not expressly teach the TLI of the glazing in a non-intact and bent state, the skilled artisan would have appreciated that the glazing in a non-intact and bent state would have a TLI of 7 or less since the glazing has the same adhesive thickness, glass sheet thicknesses, and mechanical strength as that of the claimed invention. Furthermore, the “significant reduction in injuries that result when a person strikes the glazing” would also be characteristic of the glazing of Rieser and Kramling, or alternatively, Kramling and Rieser, since the glazing would have a TLI of 7 or less.

Appellant argues on page 9 that because the cited prior art fails to teach or suggest the significant reduction in injury to persons striking non-intact and bent glazing produced by adhering together an adhesive layer having a thickness greater than 0.76 mm and two sheets of

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glass having a thickness of from 1.5 to 3 mm and a core compressive stress in the central zone ranging from 20-50 MPa, the examiner has not established a prima facie case of obviousness.

First, the examiner would like to reiterate that any arguments pertaining to significant reduction in injuries that result when a person strikes the glazing formed by the presently claimed method are not commensurate with the scope of the claimed invention.

As for establishing a prima facie case of obviousness with respect to the claimed limitations, three criteria must be addressed. The three criteria are motivation, reasonable expectation of success, and all the limitations being taught or suggested.

Regarding the first criteria, one skilled in the art would also have been motivated by the teachings of Kramling to temper the glass sheets of Rieser to have a core compressive stress in the central zone ranging from 20 to 50 MPa because such strengthening is known in the art for improving the safety of a glazing, as taught by Kramling. Alternatively, one skilled in the art would have been motivated by the teaching of Rieser to use an adhesive layer having a thickness greater than 0.76 mm for the glazing of Kramling because such a thickness used in combination with glass sheets each having a thickness consistent with that of Kramling is known in the art, for producing a glazing having optimum safety, as taught by Rieser.

Regarding the second criteria, one skilled in the art would predict a reasonable expectation of success when combining the teachings of Rieser and Kramling to produce an anti-lacerative glazing, because working with such parameters as adhesive and glass thickness and glass strength is well known in the art.

Regarding the third criteria, just because a limitation is not expressly stated in a reference does not mean the reference fails to meet this limitation. Therefore, Rieser in view of Kramling,

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or alternatively, Kramling in view of Rieser does teach or suggest all the claimed limitations, as set forth in the rejections above.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jessica L. Rossi
Patent Examiner
Art Unit 1733
July 27, 2004

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Conferees

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